THE POTENTIAL IMPACT OF INDEXED MORTGAGE LOANS ON FINANCIAL INSTITUTIONS

Submitted to

CENTRAL HOUSING AND MORTGAGE CORPORATION

by

Jim Hatch

Larry Wynant

September 13, 1982

EXECUTIVE SUMMARY

This report analyzes the potential implications of the indexed mortgage loans proposed in the June, 1982 White Paper on Inflation and the Taxation of Personal Investment Income for financial institutions and for CMHC as an insurer of the new mortgage instrument. The primary source of information was interviews conducted with the executives of several financial institutions. These discussions and our subsequent analysis led to several conclusions.

1. Resistance by financial institutions to the White Paper proposals is of two types; first, concern over the economic soundness of the proposals and the government's future intentions, and second, uncertainty over the viability of the specific changes being proposed. It is our impression that the former concern may well be greater than the second.

2. If the White Paper proposals are adopted and current economic conditions persist, the financial institutions will quickly develop indexed instruments. Within rather narrow constraints these instruments will take on a variety of forms to meet the unique needs of various financial institutions and their clientele.

3. The most likely form of indexed mortgage is one with only a minimal permitted growth in outstanding principal

and a rather conventional amortization schedule. Other likely features of these mortgages are:

(a) lower permitted gross debt service ratios,

(b) lower permitted loan to value ratios,

(c) availability restricted to higher income individuals,

(d) relatively short terms, varying from one to three years,

(e) slightly shorter amortization periods, and

(f) moderately higher loan/deposit spreads.

4. The institutions most likely to suffer a competitive disadvantage upon the introduction of this instrument will be those that are small, not computerized, regional, currently offer a narrow range of saving products or presently make restricted types of loans. The most likely immediate beneficiaries will be chartered banks.

5. Financial institutions will want to ensure all indexed mortgages even if they are of high quality. This means CMHC could affect the success of the program by its choice of insurability criteria.

6. Insurance rates will likely have to be increased slightly but even though the riskiness of this instrument could

change over time, for administrative reasons the insurance levy should remain an up-front, one-time fee.

INTRODUCTION

The purpose of this paper is to provide an input into the current discussions surrounding the June, 1982 White Paper on Inflation and the Taxation of Personal Investment Income. Our discussion is restricted to the impact of the proposed indexed mortgage loan on the financial institutions that would likely implement the government program and on CMHC as an insurer of the new mortgage instrument. Of necessity, occasional reference is made to the impacts of the indexed savings instrument as well as other loans to farmers, fishermen and small businesses on financial institutions.

Much of the following discussion is based on interviews that were held with senior executives from several financial institutions. The severe time constraint under which this report was prepared limited the number of interviews that could be conducted as well as the depth of analysis of certain issues.

The paper is divided into six parts. Part I outlines the problems that the White Paper has identified and how indexed financial instruments are expected to address them. A number of broad concerns with the White Paper proposal that institutions have brought to our attention are presented. Discussion is restricted to broad concerns so as to distinguish between these issues and the specific instrument related issues which are the subject of the remainder of the paper.

Part II is a detailed consideration of the potential impact of two different types of price level adjusted mortgages on borrowers. Particular attention is given to the impact of such factors as salary increases, inflation rates, changes in property values and interest rates on the debt burden carried by the house buyer. The key features of the proposed savings instrument are also discussed.

Part III focuses on the role of mortgages in general and indexed mortgages in particular in the portfolio of a financial institution. The point of departure for this discussion is the risk and return characteristics of mortgages.

Part IV points out the ways in which various types of indexed mortgage instruments along with the proposed matching requirement would differentially impact on financial institutions.

Part V utilizes the earlier discussions to speculate on the likely design of indexed mortgages offered by financial institutions assuming the program is implemented. It then points out the implications for CMHC if it decides to insure such an instrument.

Part VI contains a brief summary and conclusions.

P A R T I

REACTIONS OF FINANCIAL INSTITUTIONS TO THE WHITE PAPER

The White Paper proposals call for dramatic changes to the taxation system, the financial instruments available to borrowers and savers and the fashion by which capital is allocated to various sectors of the economy. Reactions by the financial institutions to these proposals stem in part from overall concerns with the objectives and scope of the proposals as well as difficulties that are anticipated in positioning the new indexed instruments in an institution's portfolio of assets and liabilities.

The purpose of this part of the report is to discuss the general criticisms that financial institutions have raised in reacting to the White Paper. This discussion will enable us to subsequently more clearly delineate the problems and considerations specifically related to the design of indexed instruments and an institution's willingness to originate and administer indexed mortgages. To this end, the following discussion first provides an overview of some of the current economic problems which government appears prepared to address and outlines how the White Paper proposals are intended to combat these problems. The next section discusses the major criticisms and concerns that will likely be voiced by financial institutions.

ECONOMIC PROBLEMS IDENTIFIED IN THE WHITE PAPER

The White Paper proposals are aimed at four major economic problems. Three of these problems are linked to inflation: distortions in the tax system arising from inflationary income; the cash flow demand on borrowers during periods of high interest rates; and the interest uncertainty facing borrowers and savers. The fourth problem concerns the serious need for economic recovery in Canada.

1. Tax Distortions

Given the existing tax system, inflation can cause the after tax real income of individuals and businesses to decline. The impact of inflation on investment and personal income has been moderated by a variety of ad hoc measures such as the $1,000 investment income exemption, indexed tax brackets, registered savings plans and the partial taxation of capital gains. Similar measures have been introduced for businesses including a special inventory valuation allowance and rapid CCA writeoffs.[1] Nevertheless, these ad hoc measures provide limited and unequal inflation protection for all income sources. Particularly hard-hit are savers and businesses.

2. Cash Flow Burden for Borrowers (The "Tilt" Problem)

If there is no inflation, salaries and tax rates do not change, and a borrower contracts to repay a loan in equal yearly

[1] One should not gloss over the fact that these ad hoc measures were intended to satisfy a variety of other needs as well as to adjust for inflation. Consequently any tax reform which led to the taxation of only real returns would not necessarily imply doing away with these programs.

blended payments, the annual loan payment will represent a constant proportion of the borrower's income. However, in an inflationary environment with increasing wages, a level payment contract means that the portion of the borrower's nominal income used to service the loan is higher at the time the loan is first created than in later years. Furthermore, an increase in the rate of inflation will cause savers to demand a higher interest rate to compensate for the expected decline in the purchasing power of their savings. This combination of high initial payments combined with accelerating interest rates with inflation decreases the ability of borrowers to qualify for loans.

Example: Suppose an individual purchases a house valued at $100,000 through a $30,000 downpayment and a $70,000 mortgage at 10% interest amortized over 21 years; monthly mortgage payments are $626. With a monthly income of $2100, the gross debt service ratio (ignoring property taxes) is 30%. Let us now suppose that inflationary expectations change suddenly and cause interest rates to increase overnight to 15%. The borrower is now faced with the prospect of a $70,000 mortgage at 15% resulting in monthly payments of $873. If a 30% gross debt service ratio is the maximum allowed by lending institutions or is the maximum that a prudent borrower should accept, the individual's income must increase to $2,900 per month. Even if the borrower's income keeps pace with inflation, it will require several years before the borrower can afford the house. Therefore, increasing inflation will cause difficulties for home buyers that are negotiating a new mortgage and existing homeowners that must renew an expiring mortgage.

3. Interest Rate Uncertainties for Borrowers and Savers

Future inflation rates are difficult to predict. As our preceding example illustrates, if inflation increases, borrowers that are renewing mortgage loans may be faced with loan payments that exceed their capacity to pay. This uncertainty causes many borrowers to avoid a home purchase. Savers have in recent years earned negative real rates of return on long term fixed-rate investments primarily because of the upward trend in inflation and interest rates. As a consequence, savers are increasingly placing their savings in shorter term instruments. However, this strategy leads to more variability in year to year cash inflows and less predictability for financial planning.

4. Current Economic Conditions

The three preceding problems stem from inflation or uncertainty regarding future rates of inflation. The Canadian economy is also in the midst of the most serious recession since the great depression. Government strategies designed to combat inflation related problems must also recognize the need for economic recovery.

PROPOSED SOLUTIONS

The tax distortions outlined earlier would be eliminated if only real income was taxed. This type of tax modification would require that all income sources be inflation indexed to distinguish between inflationary gains and real income. However,

universal indexing would be a dramatic and costly proposal and would likely involve a massive reduction in government revenues. A step in this direction is proposed in the White Paper through the creation of indexed deposit and loan instruments. The indexed deposit would subject the saver to tax only on real returns earned. Similarly, borrowers obtaining an indexed loan would only be permitted to deduct the real interest paid for tax purposes.

Indexed deposits would offer lower nominal interest rates than conventional deposits and these lower interest costs could be channeled to borrowers that are currently burdened by high interest rates. Because indexed loans are to be offered to selected borrowers (new home purchasers, farmers, fishermen and small businesses), the White Paper proposals can reduce the hardships of inflation as well as stimulate sectors that are particularly troubled by the current recession.

If the new indexed mortgage instrument took the form of a price level adjusted mortgage it is claimed that the "tilt" problem would be solved and the negative impact on borrowers of interest rate uncertainties would be substantially reduced. This would occur because the annual mortgage payment under a price level adjusted mortgage would be fixed in real terms.

GENERAL CRITICISMS OF THE WHITE PAPER PROPOSALS

The proposals in the White Paper can be expected to meet resistance from financial institutions. This resistance is

only in part related to difficulties that institutions will experience in offering indexed instruments. We believe that the institutions will, if required, successfully design and introduce indexed deposits and loans. The major reason for resistance results from fundamental concerns that institutions have with the thrust and scope of the White Paper. Some of the major criticisms are:

1. The White Paper proposals represent dramatic change. The potential flows of funds in total are massive and uncertain as are the relative impacts on various financial institutions. More time should be devoted to analysis of the implications of these proposals.

2. The real objective of the proposals is unclear. Although the primary stated objective of the program may be tax reform, the lack of a longer term plan to continue the reform suggests that the real objective may be to simply stimulate the economy using a rather cumbersome device. Furthermore, the potential elimination of the indexing of tax brackets, the $1,000 investment income deduction and the lower rate on capital gains are seen in some quarters as an attempt not only to offset tax losses, but to increase total revenues to finance current budget deficits.

3. Taxation may become more complex. If indexing is not universal the tax authorities may have created still another "ad-

justment" in the tax system which will likely have to be followed by still more tax "fine tuning" as the impact of the program becomes better understood.

4. The proposals increase uncertainty for tax planning. Many distrust the government's objectives underlying the White Paper and believe that the tax system creates further uncertainties for businesses, lenders, borrowers, and savers.

5. Much of the benefits from tax reform will be received by high income individuals. The indexed deposit instrument would be of greatest appeal to those in high tax brackets. Thus, the government is providing wealthy investors with higher investment returns and a hedge against inflation.

6. The government should not interfere in credit allocation. By deciding who will qualify for loans made available by the new deposit instrument, the government is replacing market forces with its own criteria for allocating funds among competing borrowers.

7. Other mechanisms would provide more efficient stimulus for the economy. If the objective of the White Paper proposals is to stimulate the economy, the government could more efficiently target programs for certain sectors. The White Paper proposals could be temporary and eliminated when the need for economic recovery diminishes.

8. The proposals will provide an ineffective stimulus to the economy. The hypothesis that lower nominal interest rates will stimulate economic activity is questioned. Lenders observe that low interest rates are already available through vender takeback mortgages and builder buy-downs but housing sales have not been stimulated. The real problem is that demand is falling, more people are unemployed and borrowers are reluctant to undertake financial obligations when economic prospects are uncertain.

9. The economic sectors targeted for borrowing cost relief may not be appropriate. Stimulation of the new housing market appears to run contrary to long-run demographic trends predicting lower population growth and therefore, less need for additions to the housing stock.

10. The eligibility restrictions for borrowers will cause serious inequities. If, as suggested, new homes qualify for indexed loans and existing homes do not, the price of existing relative to new homes will drop. A similar phenomenon may be experienced in the rental markets. Since permitted business loans are for capital expenditures, the program favors firms who buy new plant and equipment over those financing working capital or purchasing existing fixed assets.

11. The proposed program may become a substitute for inflation fighting. There appears to be a strong belief that any

program designed to make inflation "easier to take" may decrease the willingness of government to take the difficult steps necessary to curb inflation. Conversely, if the government seriously believes that it can bring inflation down to modest levels, then the need for such a program will disappear.

12. The impact on savings is unclear. In the short run, the overall level of savings is fixed so the impact of this program will be to divert savings from one sector to another. The longer term effect on saving rates is unclear.

13. The new instruments will compete with existing tax shelters. The demand for specific securities such as preferred shares may fall. Furthermore, such a program could lead to a rethinking of the usefulness of such shelters as RRSP's.

14. Tax reform is inconsistently applied. The lowering of tax paid on interest to allow for inflation while at the same time "temporarily" decreasing the indexing provision for personal taxes is an unusual way to approach tax reform.

15. Many government bodies are involved. The proposed changes have implications for several different provincial and federal statutes. They also affect federal/provincial tax agreements. There is some question over whether all of these changes could be made quickly and without affecting the nature of the proposed instrument.

In summary, much of the resistance to the White Paper proposals is not based on a misunderstanding of the concept, opposition to tax reform or even an unwillingness to try innovative programs. Instead, it is based on such broad notions as the proper role of government in the allocation of capital flows, genuine concern over the economic cost effectiveness of the proposed program and uncertainty surrounding future government initiatives. The mere length of the incomplete list of concerns and issues we have just presented suggests that hasty introduction of the program may be inadvisable. Nonetheless we now turn to a closer look at the impact on borrowers and savers of the proposed inflation adjusted mortgage and a related savings instrument.

P A R T I I

IMPACT OF INFLATION ON BORROWERS AND SAVERS

The purpose of this section is to carefully discuss the problems and uncertainties experienced by borrowers and savers under inflationary conditions and to describe how their positions are modified by the creation of indexed instruments. This discussion should assist in better understanding the potential marketability of indexed loans and deposits and a financial institution's risks and returns from acting as an intermediary in gathering indexed deposits and making indexed loans.

Borrower's Position

Since the exact details of indexed loans have not yet been legislated or determined in the marketplace, it is necessary to consider alternative designs. For this purpose, we will examine the risk impacts for the two extreme alternatives discussed by Bossons:[2] a mortgage instrument that requires no capitalization of inflation, called a no capitalization mortgage or an "NCM"; and a mortgage where the principal is adjusted fully for price inflation, called a price level adjusted mortgage or a "PLAM". We will compare the risks for each of these instruments to those faced by borrowers under a conventional mortgage arrangement which is assumed to be a three year term, fixed interest rate mortgage. A three year term instrument was chosen

[2] Since the Bossons paper, "On the Design of Indexed Mortgages", has been widely distributed, we will simply assume that the reader is familiar with these two alternatives to avoid needless duplication.

(rather than for example a one or five year term instrument) because such mortgages are currently being offered and yet are sufficiently different from indexed mortgages to allow us to highlight the risk differences between them.

A borrower with a conventional mortgage may currently experience financial difficulties and risks for at least five major reasons. First, high levels of inflation and interest rates have caused the financial burden of servicing mortgage payments to increase for many borrowers. Second, volatile economic conditions suggest that a borrower's income may fluctuate, possibly increasing the strain of making mortgage payments. Third, the rate of inflation may rise leading to higher interest rates at the time a mortgage has to be renewed. Fourth, the problem caused by a sudden increase in the rate of inflation has even more serious ramifications for the borrower if his or her income has not kept pace. And fifth, an individual's equity in the house may decline or even become negative if house prices fall making mortgage renewal difficult and increasing the chance that the borrower may decide to solve his problem by "walking away" from the property.

1. <u>Debt servicing capacity under inflation</u>.

   Our example in Part I demonstrated that the percentage of a borrower's income that is used to service loan payments in the early years of a mortgage increases sharply with

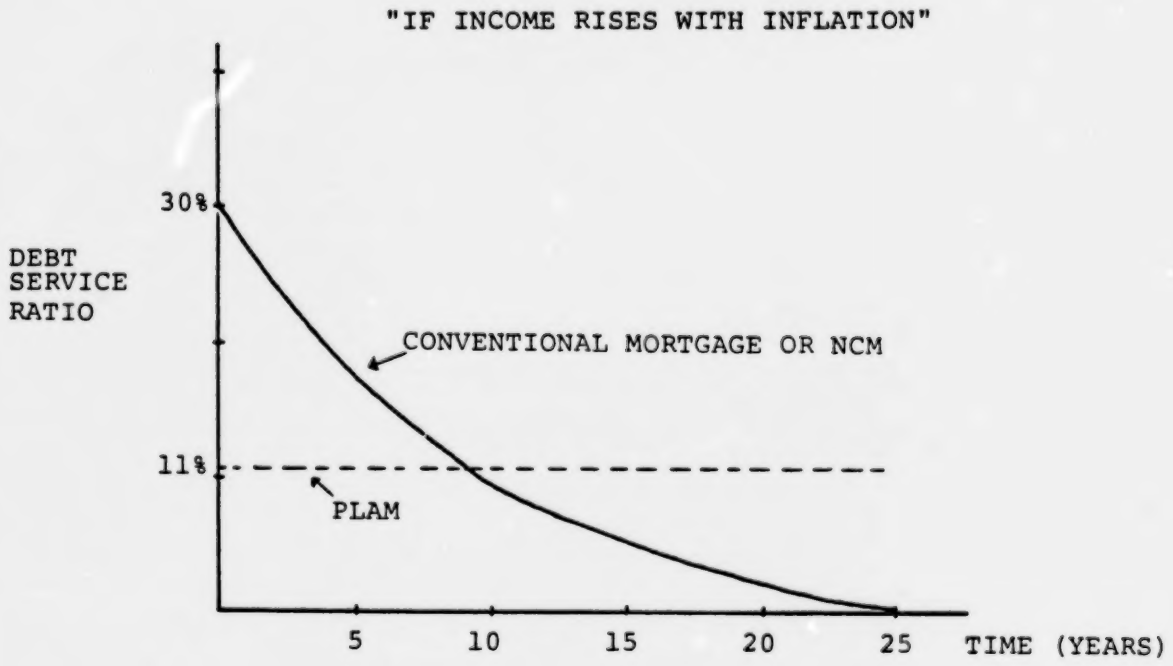
inflation. Since a conventional mortgage requires equal loan payments over time, the proportionate drain on income decreases over time as long as income increases with inflation. This result is often called the "tilt" problem and is illustrated in Exhibit 1.

Exhibit 1 contains a comparison of the GDSR over the life of a mortgage if the borrower takes on a conventional or an NCM mortgage relative to a PLAM. In each case it is assumed that a house is purchased for $100,000 and a $75,000 mortage is obtained. The conventional mortgage or NCM have a 25 year term and an interest rate of 14½%. The PLAM is assumed to have a real rate of 2½% and the expected inflation rate is 12%. The borrower's monthly income is assumed to be $3,025 leading to an initial GDSR for the conventional mortgage of 30% and for the PLAM of 11%.

If inflation remains at 12% and the borrower's income rises yearly at that rate, then the debt service ratio continually falls for a conventional mortgage from an initial level of 30%. A PLAM, on the other hand, allows mortgage payments to increase over time so that the debt service costs remain at a constant percentage (11% in this case) of income. Thus from the borrower's standpoint, a PLAM considerably reduces the initial debt burden of a mortgage. Exhibit 1 indicates that the debt service ratio for a PLAM

EXHIBIT 1

Debt Service Ratios for Conventional and Indexed Mortgages



Mortgage Payments and Debt Service Ratios

Year	PLAM ($75,000 at real rate of 2½% and inflation at 12% Mortgage Payment	GDSR	Conventional Mortgage or NCM ($75,000 at 14½% Mortgage Payments	GDSR
1	$366	11%	$908	27%
2	411	11	908	24
3	460	11	908	21
4	515	11	908	19
5	577	11	908	17
6	646	11	908	15
7	724	11	908	14
8	811	11	908	12
9	908	11	908	11
10	1,017	11	908	10
⋮	⋮	⋮	⋮	⋮
25				

approaches that of a conventional mortgage after roughly nine years. By that time the burden of both mortgage types is so low that the risk being taken by the borrower is modest.

2. Inadequate growth in the borrower's income.

A second risk facing borrowers is that salary or income does not keep pace with inflation. An individual obtaining a conventional mortgage may be prepared to accept a high debt service ratio if he or she believes this burden is temporary since the individual's income will increase over time with inflation. Exhibit 1 indicates that the debt service ratio with a conventional mortgage or NCM declines continuously. However, if the borrower's income stays constant or grows less rapidly than the inflation rate, then the strain of a high debt burden may be prolonged.

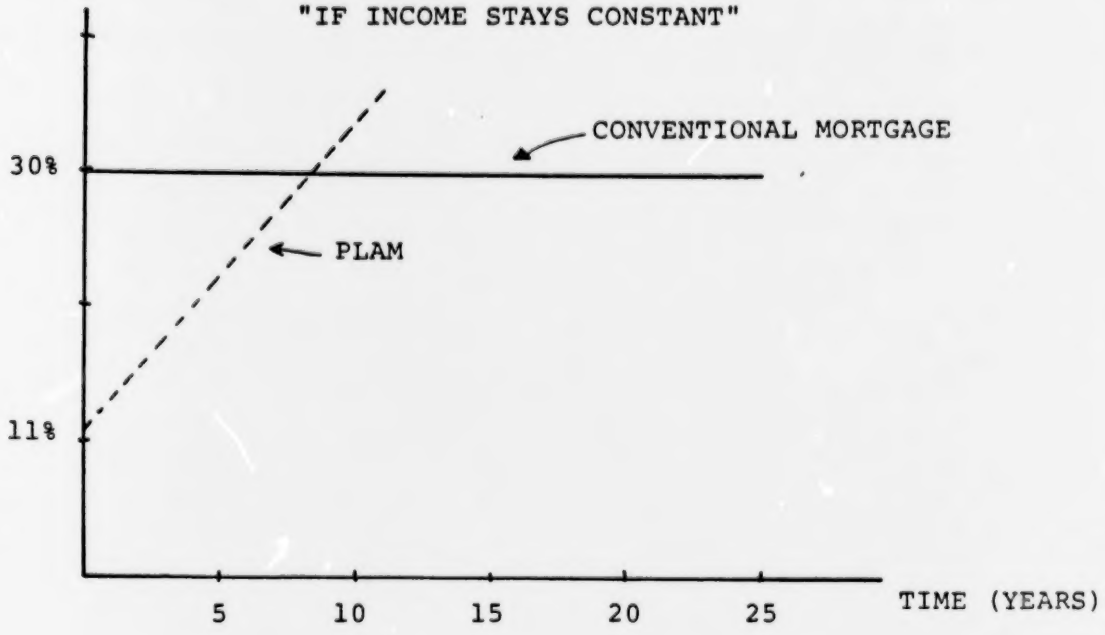
Exhibit 2 portrays the situation where a borrower's income says constant. A PLAM lowers the risk of a persistently high debt burden since loan payments are lower for the first eight years of the mortgage. The individual's income will have hopefully caught up to inflation during this period.

3. The rate of inflation increases.

A rise in the real rate or unanticipated inflation will cause the borrower's mortgage payments to increase. Any longer term mortgage locks in the real interest rate or

EXHIBIT 2

Debt Service Ratios for Conventional and Indexed Mortgages



Mortgage Payments and Debt Service Ratios

	PLAM		Conventional Mortgage or NCM	
Year	Mortgage Payments	GDSR	Mortgage Payments	GDSR
1	$366	12%	$908	30%
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4	515	17	908	30
5	577	19	908	30
6	646	21	908	30
7	724	24	908	30
8	811	27	908	30
9	908	30	908	30
10	1,017	34	908	30
⋮	⋮	⋮	⋮	⋮
25				

the nominal rate for some period of time but exposes the borrower to the risk of increased interest rates at renewal of the mortgage. With our assumed three year term conventional mortgage, the loan payment may increase at the end of that year. The top line in Exhibit 3 depicts this occurence. An increase in inflation in year three from 12% to 17%, for example, will cause the debt service ratio for a conventional mortgage to rise to 39% provided income continues to rise perfectly with inflation. The increased debt burden again results from the tilt problem. An NCM magnifies the consequences of increased inflation since mortgage payments will adjust after one year. The debt service ratio on a PLAM, however, remains constant at the original 11% since a PLAM sets payments at a constant proportion of nominal income.

4. Inflation increases and at a faster rate than income. The borrower's financial strain will be greatest if both (2) and (3) occur simultaneously, namely inflation increases so that interest rates rise on renewal of the mortgage but the individual's income remains constant or grows at a slower pace than the new level of inflation. Exhibit 4 illustrates the impact of these two events on a borrower's debt service ratio. In the case of a conventional mortgage, the debt service ratio climbs in year three. An NCM with

EXHIBIT 3

Debt Service Ratios for a Conventional Mortgage and a PLAM if Inflation Increases

"IF INCOME RISES WITH INFLATION"

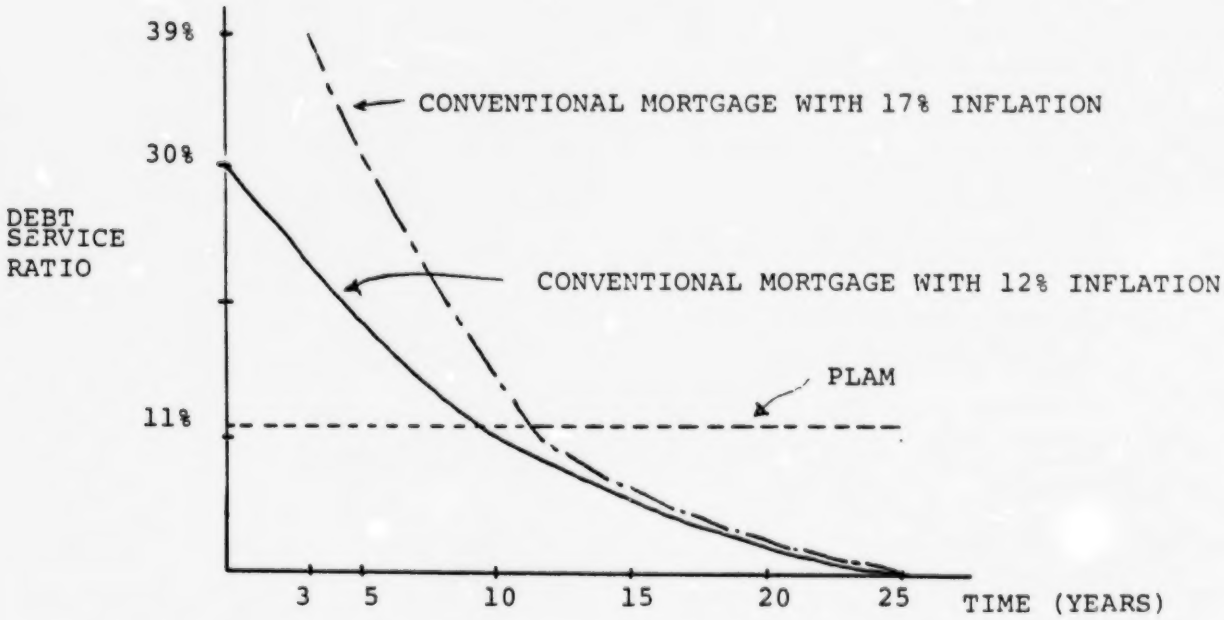
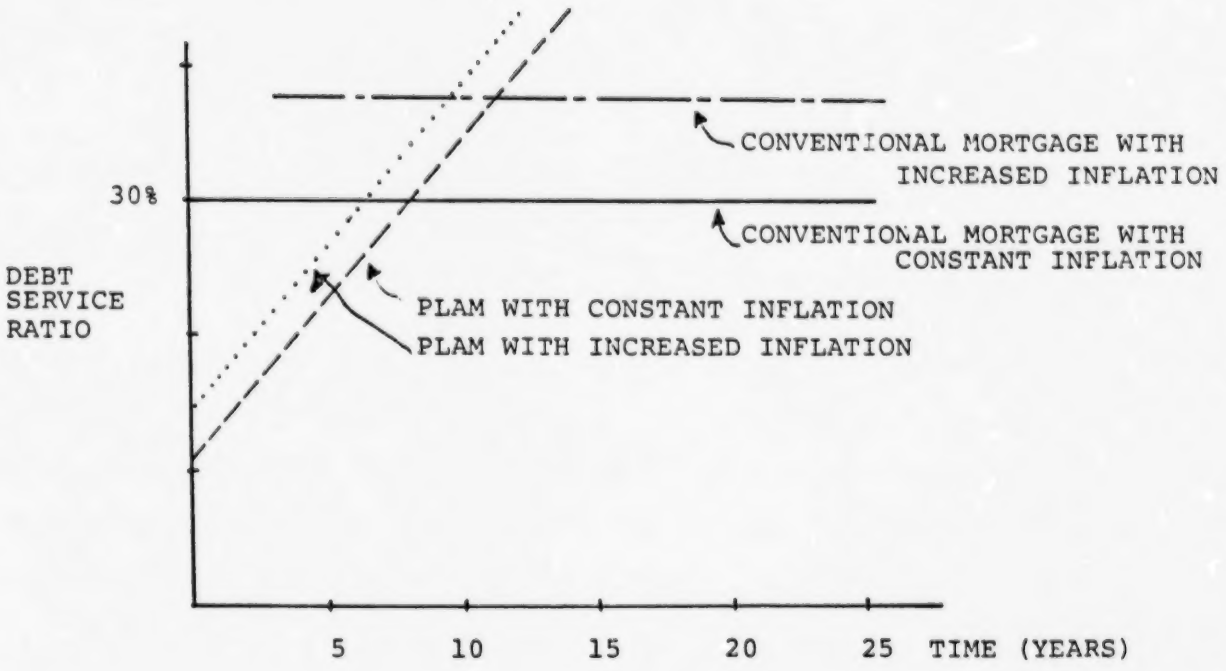


EXHIBIT 4

Debt Service Ratios for a Conventional Mortgage and a PLAM if Inflation Increases

"IF INCOME REMAINS CONSTANT"



a more rapid adjustment of loan payments causes the impact to be felt even more immediately. The debt service ratio for a PLAM also increases. However, since much of the additional loan payment caused by increased inflation is deferred to future years, the borrower has the comfort of a longer time period for income to catch up before the full strain is experienced.

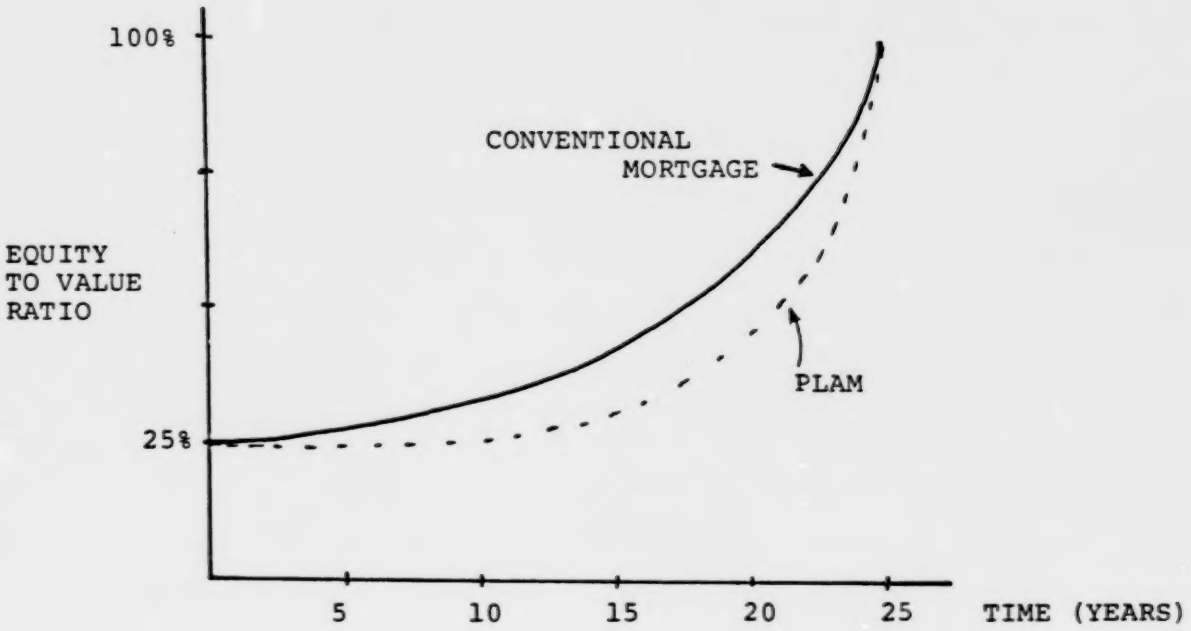
5. The risk of declining equity.

An owner's equity in a house will decline if house prices fall and this will reduce the borrower's willingness or ability to renew a mortgage. A conventional mortgage calls for a gradual decrease in principal or conversely, an increase in the borrower's equity. An NCM will experience a modest increase in the loan outstanding if unanticipated inflation occurs, so the risk of declining equity is somewhat larger than with a conventional mortgage. However, a PLAM increases the risks of declining equity much further. Exhibit 5 illustrates the proportionate equity investment for a conventional mortgage and a PLAM under the conditions that house prices grow at the inflation rate. The conventional mortgage calls for a much more rapid buildup of equity. If house prices fall, remain constant or grow less rapidly than the rate of inflation, then a PLAM runs the risk of a declining or even negative equity investment in the property. This is depicted in Exhibit 6. The series of

EXHIBIT 5

Equity to Value Ratios for a Conventional Mortgage and a PLAM

"IF HOUSE PRICES RISE WITH INFLATION"



dashed lines represent equity proportions for PLAM's assuming a variety of different inflation rates. A PLAM at a 12% inflation rate calls for the nominal principal to increase for the first seventeen years of the mortgage and to remain at a level in excess of the original loan for virtually the whole term of the mortgage. Rapid inflation leads to the greatest risk of deteriorating equity.

A decline in the proportionate equity investment would likely not cause an institution to refuse a mortgage renewal so long as the borrower is making mortgage payments. However, declining equity may be alarming to a lending institution if at the same time, the borrower's income has not grown rapidly enough to comfortably service a mortgage renewal at higher interest rates or if the borrower is becoming delinquent in making his payments. If the lender believes that the borrower's income prospects will not quickly improve and the PLAM's principal will continue to build, then the loan may be called while there is still a reasonable amount of equity to fall back on. In any event, the PLAM exposes borrowers to the highest risks of a declining or negative equity investment in their homes.

6. Overall risks for borrowers.

Exhibit 7 summarizes the financial problems experienced by borrowers for conventional and indexed mortgages. On

EXHIBIT 6

Equity to Value Ratios for a Conventional Mortgage and a PLAM

"IF HOUSE PRICES DO NOT KEEP PACE WITH INFLATION"

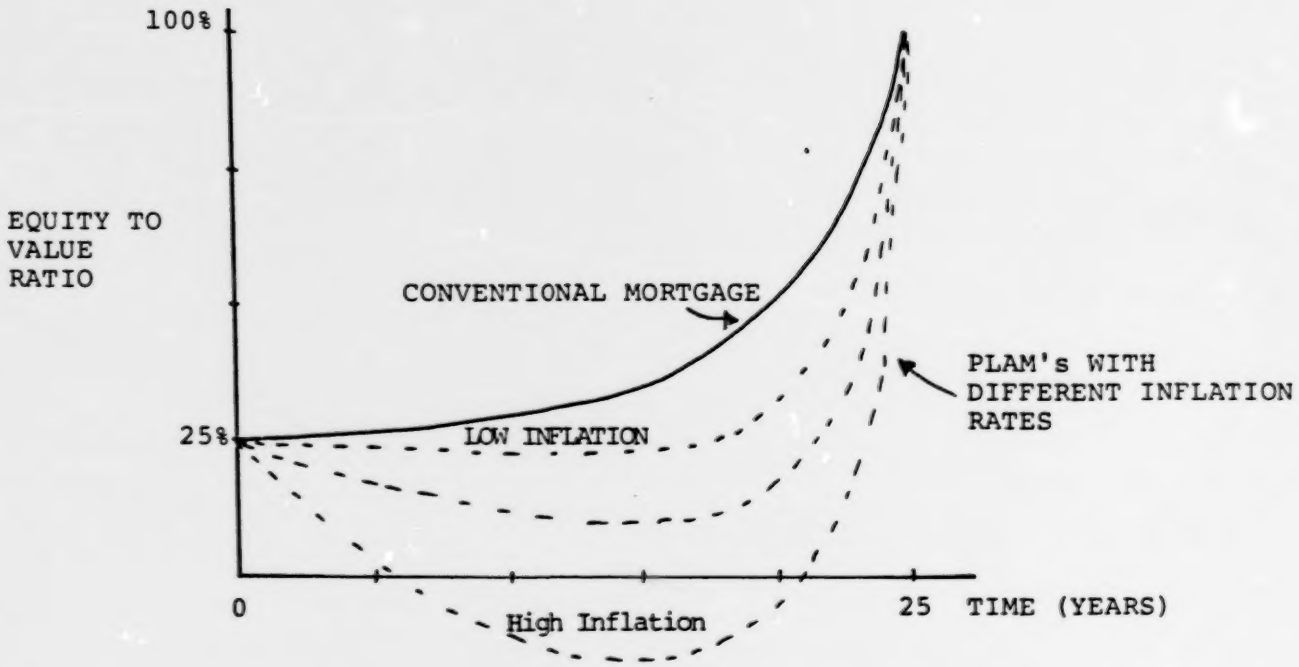


EXHIBIT 7

Financial Problems for Borrowers:
Indexed versus Conventional Mortgages

Types of Problems	Financial Strain for Borrowers	
	NCM (no capitalization mortgage)	PLAM (price level adjusted mortgage)
1. increased debt service burden with inflation	the same	lower
2. income does not keep pace with inflation	higher	lower
3. interest rates increase at time of mortgage renewal	higher	lower
4. interest rates rise on renewal and income does not keep pace with inflation	higher	lower
5. equity in the property declines	higher	higher

balance, an NCM entails greater risks for a borrower than a conventional mortgage. A PLAM lowers the debt service burden for a borrower during inflationary times and provides more protection against unanticipated inflation and declining real incomes. However, this protection is at the cost of less accumulated equity in the property. As a result, a PLAM increases the likelihood of declining wealth for home owners.

The preceding extended illustrations made two key assumptions which we may now relax; (1) that the initial interest rates on a conventional and PLAM mortgage were the same and (2) that the lender's initial GDSR was just adequate to finance a $100,000 house. It is widely believed that PLAM and NCM interest rates will generally be lower than conventional rates. If this is true these two instruments will generally be less risky along all dimensions previously discussed. Of course, if the eligibility for the tax benefit is short-lived the low risk price level adjusted mortgages could suddenly revert to very high risk mortgages. With respect to the GDSR's of the new instruments, there may be some tendency for lenders to make PLAM loans with a higher GDSR than the 11% in our example just because the PLAM's appear to have lower risk. If this were to happen PLAM's issued now could plant the seeds for very high borrower risk in later years.

The Saver's Position

In recent years, Canadian savers who have placed their funds in deposits have experienced variable and often negative real rates of return, primarily due to the recent growth in interest rates and inflation. Partly as a response to these problems and partly due to general economic uncertainty, depositors have increasingly placed their funds in shorter term instruments. Given the matching tendency of financial intermediaries, this means that long term funds for borrowers have largely dried up.

The introduction of the new indexed deposit will provide savers with the opportunity to lock in a fixed (although not necessarily positive) real rate of return thus effectively eliminating purchasing power uncertainties. Moreover, the favourable tax treatment of the new deposit instrument may allow savers to earn a higher after tax rate of return than previously available. These two features should cause nominal rates on these savings instruments to be lower than for conventional deposits.

If the deposit instrument is similar to the NCM mortgage instrument, the cash flow received by the depositor will vary from year to year with changes in interest and inflation rates regardless of the term of the deposit. In this respect, the deposit will be similar to a current strategy of continually rolling over one year term deposits. The added benefit would be

that the real return is fixed and the after tax returns are higher. Unless the saver wanted to lock in the present real return he would have no special incentive to purchase a long term deposit and may even prefer to stay in the short term due to the newness of the instrument.

If the deposit instrument is similar to the PLAM mortgage instrument, the annual cash flow from the deposit will be lower than for a conventional deposit with much of the return being received in the form of an increase in the principal value of the deposit. Deposits of this type have been offered in the past but have only met with modest success, perhaps because of the low annual cash flow or the extended term of such instruments. While the inflation adjusted feature of the new instrument may allay these concerns, it is likely that savers will prefer, at least initially, to restrict their maturities to the shorter term.

In summary, while there is likely to be a substantial demand for the new savings instrument, demand will likely be restricted to the shorter term. This means that either the term on the corresponding loans offered by financial institutions will be short or an upward sloping real yield curve will have to develop or both.

PART III

ROLE OF INDEXED MORTGAGES IN AN INSTITUTION'S PORTFOLIO

The previous section of this report outlined how borrowers may be affected by indexed mortgages and how savers would react to indexed savings deposits. The purpose of this section is to discuss how institutions will view indexed mortgages within their portfolios of assets and liabilities. The problems and opportunities created by an indexed mortgage will vary across institutions depending on their market position, customer base, legislative constraints and the like. This part discusses how indexed deposits will fit generally within an institution's portfolio of products while Part IV will describe the differential impacts of the indexed mortgage instruments on financial institutions.

Overview of Portfolio Management in a Financial Institution

When a financial institution introduces a new type of mortgage, it must assess the potential risks associated with the new loan and whether expected returns are adequate to compensate for the risks.

The returns earned by the financial institution depend on the volume of loan demand, the administrative costs, required liquidity and capital reserves and the spread between borrowing and lending rates.

Risks can be divided into two categories; default risk and matching risk. Default risk is the potential for losses caused by a borrower's inability to repay a loan, combined with the inadequacy of the pledged collateral to cover the liability. Matching risk is of two types, earnings volatility, and cash flow variability (or illiquidity). Earnings will fluctuate if the lending institution does not perfectly match the interest rate terms of its assets and liabilities. If funds acquired by issuing short term deposits are invested in long term, fixed rate assets, then an increase in market interest rates will cause the institution to roll over its maturing deposits at more expensive rates, causing profits to decline. A mismatch in the other direction, namely financing short term assets with long term liabilities, will cause profits to fall if interest rates decline in general. A mismatch can also cause an institution illiquidity problems if deposits mature and cannot be replaced because of a market crisis or a fall in the institution's credit worthiness or customer base. Illiquidity, because of mismatching fund sources and uses, is seldom serious enough to threaten an institution's survival. However, institutions recall the difficulties that many smaller banks in the U.S. experienced in raising money market deposits in the mid-seventies after the collapse of a few U.S. and European institutions.

The following discussion analyzes the risk and return characteristics of the two different types of indexed mortgages, an NCM and a PLAM. This analysis will largely be comparative, again assuming the prevailing mortgage loan to be a fixed rate, three year mortgage. Both the NCM and PLAM are assumed to be renewable and transferrable loans, that is, the interest rate advantage of an indexed mortgage will be attached to a newly constructed house for the indefinite future. These features are vital if the indexed mortgage is to offer a substantial advantage to new home buyers and to avoid the massive confusion over the present value of low interest rate loans and an appropriate borrowing strategy that would result amongst home buyers and lenders if the indexed mortgage had a limited life or could not be transferred upon sale of the property.

Risk and Return Profile for a PLAM

In this section we outline the impact on the risk and return which might be experienced by the financial institution if a PLAM was created. The next section discusses the impact of an NCM.

1. Default risks

A lender manages the default risk for a mortgage loan by establishing a maximum gross debt service ratio (GDSR) to ensure that the borrower can comfortably service the debt

payments and by setting a maximum loan to value ratio (LTVR) to guarantee an adequate equity cushion in the event the property has to be sold to settle the mortgage loan. A stipulated downpayment, such as 25%, protects against a fall in house prices, offsets legal and liquidation expenses if the house must be sold, and provides the home owner with a strong incentive to maintain the loan payments since much of the equity would be eliminated in a forced sale. Lenders will avoid mortgage situations where the potential for default is large even if the loan is fully secured. A default is time consuming and at a personal level, is very agonizing for the individuals involved.

All of the institutions interviewed considered the default risks for a PLAM to be excessive unless the qualifying standards for the borrower, namely, the GDSR and LTVR, are modified considerably. This assessment appears valid given our conclusions in Part II.

For example: Assume that a house is purchased for $100,000 with a $25,000 downpayment and a $75,000 PLAM, amortized over 25 years, with a real interest rate of 2.5% and expected inflation of 12%. The borrower's initial salary is assumed to be $25,000 and both this salary and the value of the house are expected to increase with inflation.

Year	Nominal Mortgage Payment	Mortgage Payment as % of Salary (GDSR)	Ending Principal Oustanding	Principal as % of House Value (LTVR)
1	$ 366	18%	$ 81,500	73%
5	577	18	111,800	63
10	908	18	156,500	50
15	1,793	18	195,000	36
20	3,159	18	182,400	19

The institution faces two major risks with a PLAM. First, the monthly payments may grow faster than the borrower's income, causing the GDSR to increase. To counter this difficulty, the lender would require a lower initial GDSR. For example, a GDSR of 18% against current income would produce a GDSR of 32% five years hence if income did not grow at all and inflation continued at 12%.[3]

Second, default risk increases because of the increasing principal amount, which could lead to an unfavorable loan to value ratio if house prices fell or did not increase fully with inflation. The principal outstanding with a conventional loan, on the other hand, declines steadily. With a PLAM, if inflation continues at 12% annually and house prices remain unchanged, the loan outstanding will exceed the house value in less than four years. Taking a more extreme case, if house prices actually fell as they have in some Canadian markets, the combination of increasing

[3] $(1.12)^5 \times 0.18 = 0.32$

principal and declining house prices, could produce negative equity in a very short time.

A reduction in the equity investment in a house increases the likelihood that an owner will "walk away" from the mortgage loan or that the institution will suffer a loss if it is forced to sell the property. Few of the additional default risks with PLAM's can be eliminated if an institution diversifies its mortgage loans across the different housing markets in Canada. With a fixed return (and no sharing in market value gains and losses), default losses on some homes will not be offset by extra mortgage returns on other properties.

A variety of techniques may be used to offset this apparent risk. For example, increased default risks can be partly offset by mortgage insurance for the PLAM; however, lenders are still reluctant to grant loans that may go bad. A second solution for a lender is to monitor house values carefully and to call the mortgage if the equity investment falls below some prescribed proportion. However, this proposal is not feasible: it would be administratively costly and would subject an institution to unfavorable publicity. A lender is also reluctant to call a loan with deteriorating collateral provided the borrower is still making monthly payments. A third solution to the risk of

declining loan to value ratios is to have a limit beyond which the loan to value ratio is not allowed to grow. Once the loan reached this limit, the monthly payments could be increased so that the principal began to decline again. This alternative is also administratively cumbersome and defeats much of the incentive for price level adjusted instruments. A fourth solution is to allow the principal to increase only as fast as the value of the house increases. This solution implies that there would have to be a method of appraising each house in the portfolio on a regular basis and again appears infeasible.

The only feasible remedy to increased default risks with a PLAM is to set the initial loan to value ratio at a lower level. In the extreme case, the LTVR could be set at a level which, if house prices were unchanged, would lead to a loan to value ratio that would be similar to that for a conventional mortgage by the time the loan was up for renewal. In the above example, the initial LTVR would be set at roughly 50% which is substantially below the ratio currently being employed by lenders.

In summary, the PLAM exposes an institution to increased default risks. PLAM's have been promoted as a means of reducing the "tilt" problem for borrowers. However, this advantage results because additional risks, namely the

likelihood of default and losses on liquidation, have been transferred to lenders.

2. Matching Risks

Traditionally financial institutions have attempted to fund mortgage loans with deposits of similar term to maturity. From time to time some institutions have taken advantage of the upward sloping yield curve by shortening the maturity of their deposits relative to their loans to earn higher spreads. However, this strategy has become increasingly risky due to the steady increase and heightened volatility of interest rates. The result is that greater care is being taken to match the term of deposits and loans. Because, as discussed in Part II, savers are increasingly favouring the shorter maturities, mortgage terms are also shortening.

Financial institutions could attract more long term deposits (and therefore make longer term mortgage loans) if they increased long rates substantially. However, if rates subsequently rose, savers would cash in their deposits (wherever allowed) and the institution would have to replace the deposits with higher cost deposits. On the other hand, if interest rates fell, borrowers would prepay as much of the mortgage as possible, leaving the financial institution with the problem of relending the funds at lower rates. As a result of these risks, financial insti-

tutions have essentially stopped raising long term deposit money and are concentrating on short term maturities.

Given the way that a PLAM is designed, the financial institution will not know how much cash will be received or even the total amount owing on the loan until a period has passed and the inflation has actually occurred. For this reason, it will be absolutely essential to design a savings instrument which has identical characteristics to the PLAM. If the instruments are both price level adjusted with respect to cash flows the institution may decide to mismatch terms modestly because the only mismatching risk is that the real rate on assets and liabilities changes dramatically. For these deposit instruments, due to their tax advantage, the real rate is expected to fluctuate closely to zero so the matching problem may be modest.

A second matching risk with PLAM's will occur because of the requirement that the dollar volume of inflation adjusted assets and liabilities must be the same. If an intermediary has a wide variety of different assets and liabilities, average cash inflows and outflows are somewhat easier to match than will be the case with PLAM's.

3. Volume of Loan Demand

A concern which must be addressed by a financial institution introducing any new product is whether the potential demand

for the product will be adequate to cover the up-front costs of introduction. The consensus of most institutions contacted is that indexed deposits will attract a substantial pool of funds. As discussed earlier, the government and institutions may not be prepared to advertise deposits bearing a negative real rate of interest. Statistical studies of the White Paper proposals suggest that a negative real rate would emerge if rates were determined simply by market flows. Therefore, the imposition of a constraint of non-negative real rates will require that indexed deposits be rationed in some fashion, most likely by establishing maximum amounts per depositor. Deposit demand is expected to be concentrated in shorter maturities, particularly if indexed deposits take the form of a PLAD.

The demand for PLAM's is less certain and depends on borrower's preferences and the interest rate advantage for indexed mortgages. The tax advantage offered indexed depositors mean that PLAM's will be offered at lower nominal interest rates than conventional mortgages even if institutions charge a risk premium for the higher default risk associated with PLAM's. Most of the institutions interviewed believe that a PLAM would meet with limited market acceptance. This belief in part reflects their own convictions that price level adjusted mortgages involve

unacceptable risks for borrowers plus their reluctance to introduce a loan instrument that departs sharply from established lending practices. However, a limited market acceptance is also anticipated because of difficulties that borrowers might perceive in obtaining a PLAM. First, the program is novel, difficult to understand and may be seen as potentially short-term. The advantages of an indexed mortgage will be particularly difficult to comprehend if the mortgage has a limited life or limited transferrability. Second, lenders claim that borrowers also prefer to pay down principal as rapidly as possible. This desire reflects prevailing notions of financial prudence and the high after-tax opportunity return from increasing the equity investment in a home. Institutional lenders argue that the bulk of their current mortgage borrowers use all available savings to pay down their mortgages, particularly at the time of renewal, at a faster rate than required by the amortization agreement. They also point to the limited success of graduated payment mortgages (GPM) introduced in the past five years. One lender claimed that only 17% of their borrowers who were having mortgage payment difficulties had accepted a GPM when it was offered.

Although the White Paper correctly promotes the PLAM's advantage of a locked-in real rate of return, the borrower

is exposed to the risk of fluctuating inflation rates and therefore, a less predictable cash flow and equity investment in the house.

4. Administrative Costs

Administrative costs of developing and introducing a PLAM will be substantial and will involve three elements: (1) education of the lending staff, (2) promotion of the product and (3) systems development.

Education of the lender's staff is likely to be a major activity. Lenders are accustomed to thinking in nominal terms and of mortgages where the principal declines. Relative to other loans, such as business demand loans, mortgages have traditionally required little time to negotiate and administer. Once granted, a mortgage commands little attention unless the borrower becomes delinquent in making loan payments. A PLAM, however, requires that a lending officer more actively monitors the loan to value ratio and the customer's ability to repay. Those institutions that have introduced variable rate mortgages have devoted considerable time and effort to developing the lending staff's familiarity with the new scheme and procedures required to process those mortgages. The development activities have included:

- developing new credit criteria
- establishing procedures for assessment and monitoring
- designing and conducting training programs for employees

Promotion of a PLAM would also be a major activity. New literature and promotional programs would have to be created to increase the public's understanding of indexed mortgages as well as house builder's familiarity with the specifics of the institution's PLAM. A substantial amount of time on the part of lending staff would also be required to explain to individual borrowers the features of a PLAM and benefits that might be relevant to the borrower's particular needs.

The costs of modifying existing information and reporting systems is also likely to be substantial. New forms would have to be created and the institution would have to develop an automated data processing program. For some time, until procedures are well developed for allocating loan payments to principal reductions, real returns and inflation adjustments, it is likely that a parallel computerized and manual bookkeeping system will be required. On the positive side, data processing capabilities for the major institutions are already quite advanced and once the changes to the data processing system are made, maintenance costs are not likely to be much different from that required for conventional mortgages or the variable rate mortgages now being introduced.

5. Liquidity and Capital Reserves

Financial institutions normally operate within liquidity and capital constraints. Liquid assets are maintained to meet statutory reserve requirements and to meet temporary cash flow needs arising from unpredictable lending commitments or outflows of deposit funds. Assets are also supported by permanent risk capital to provide depositors with protection against profit declines.

Reserves will be required for PLAD's and liquidity will be necessary to meet temporary cash flow needs. However, introduction of PLAM's and PLAD's should not require institutions to maintain proportionately more liquid assets than is currently the case. Therefore, indexed instruments should have only a modest incremental impact on liquidity and may in fact reduce the need for liquidity if a policy of closely matching terms is followed. The problems for specific institutions being unable to perfectly match their indexed loan and deposit balances will likely be relieved by inter-institutional trading of indexed funds or the creation of indexed securities by the federal government that could be purchased by institutions holding excess indexed deposits.

The indexed instruments should also have little effect on an institution's capital requirements. Although inflation

will enlarge the need for new equity capital, PLAD's and PLAM's should not cause the aggregate assets and liabilities of institutions to grow any more than they are presently growing. However, there may be a re-allocation of growth opportunities and therefore capital needs amongst different institutions.

6. Loan Spreads

Financial institutions require a spread between their borrowing and lending rates to cover operating costs, default losses, mismatching risks and to provide a return on capital. One can predict that spreads for indexed instruments will increase from current levels because of (1) the higher default risks of PLAM's and (2) the costs of introducing and administering PLAM's. The increase in loan spreads will likely be moderated by a tendency for institutions to manage default risk through more conservative borrowing standards versus higher spreads and the favourable impact that the indexed instruments will have on the matching risk exposure of some institutions.

7. Summary

Exhibit 8 summarizes the risk and return profile for PLAM's relative to conventional mortgages. Institutions will have greater default risks unless the borrowing standards for PLAM's are made more conservative. On the other hand,

EXHIBIT 8

Comparative Risk and Return Characteristics of a PLAM
Versus a Conventional Mortgage

Default Risks	Matching Risks	Loan Demand	Administrative Costs	Liquidity and Capital Reserves	Loan Spreads
. increased risks of:	. risks minimized unless:	. limited market acceptance:	. introduction costs are high:	. minimal incremental impact	. increase due to:
- income growth less than inflation	- terms mismatched	- lender reluctance	- education of lenders		- higher default risks
- declining equity in the property	- deposit and loan balances are unequal	- novelty and complexity	- customer promotion		- greater administrative costs
		- borrower preferences for declining principal	- systems development		
		- borrower preferences for fixed cash flows	. administrative costs increase due to more monitoring		

PLAM's and PLAD's will reduce some of the risks that many institutions now face in matching mortgages and deposits. Lenders predict limited market acceptance for PLAM's because of their novelty, increasing loan amounts and unpredictable cash flow payments. Institutions will face large up-front costs for introducing PLAM's and high costs for the day-to-day monitoring of the mortgage portfolio. We anticipate that indexed instruments will have little incremental impact on the liquidity and capital requirements of institutions. Loan spreads will likely increase because of higher default risks and administrative costs but the increase should be moderated by the low matching risks associated with the new instruments.

Risk and Return Profile for an NCM

The following discussion points out the key risk and return impacts on a financial institution that would result from the offering of a no capitalization indexed mortgage.

1. Default Risks

As is true for a PLAM, the default risks on a NCM depend largely on the initial loan to value ratio and the GDSR permitted by the lender. Since annual payments and to a lesser extent principal can fluctuate upward and downward with changes in the rate of inflation, the default risk is

larger for an NCM than a conventional mortgage. First, the level of repayment risk will increase since year to year income changes may not keep pace with inflation. Second, from the standpoint of the loan to value ratio, the NCM is slightly riskier than a conventional mortgage. The principal outstanding will be allowed to grow for one year to accommodate unanticipated inflation, thereby potentially lowering the proportion of equity invested in the house.

Because of the higher default risks for an NCM, lenders will likely lower the GDSR and LTVR maximums. However, the reduction in the ratio requirements will be less severe than what is predicted for a PLAM. The CIBC variable rate mortgage, for example, specifies a maximum loan equal to 70% of the value of the property.

2. Matching Risks

The asset/liability matching risk for an NCM is minimal if a similarly designed deposit instrument is issued. An indexed deposit where the inflation component of interest is paid annually, rather than added to the principal as in the case of a PLAD, should be a very attractive savings vehicle. It offers a tax advantage and interest is paid in a fashion similar to current deposit instruments. Savers should be more willing to contract for longer maturities than was proposed for PLAD's, thereby reducing the need for sharply

rising real yields on indexed deposits. A relatively flat real yield curve would therefore result for NCM's. All borrowers would consequently find longer term mortgages more attractive. An institution should be able to closely match terms of NCM's and indexed deposits, avoiding the potential matching risks discussed earlier for PLAD's.

The problem of balancing the volume of indexed loans and deposits would be similar for NCM's and PLAM's.

3. Volume of Loan Demand

Institutions that were interviewed believe that NCM's would be a popular mortgage instrument. An NCM offers a significant cost advantage, is less confusing than a PLAM and is consistent with lender and borrower preferences for a positive amortization of principal. NCM's contain two strong negative features for borrowers. First, this instrument provides no relief of the tilt problem, which can be attractive to certain groups of home purchasers. Second, the year to year variability of loan payments will be perceived by the borrower as dramatically increasing cash flow risks relative to either a PLAM or a conventional mortgage. Borrowers have a strong preference for predictable loan payments. The popularity of a convential mortgage relates not to the fixed interest rate itself but to the stability that a predetermined cash flow payment

allows. The Canadian Imperial Bank of Commerce's variable rate mortgage, for example, has a fluctuating mortgage rate but was designed to guarantee a fixed payment for a five year period. The attractiveness of the CIBC mortgage will not hold true for an NCM where the loan payment can vary considerably over the life of the mortgage.

4. Administrative Costs

Since the NCM is similar to one year renewable or variable rate mortgages, its introduction should require less time and costs. Several institutions offer variable rate mortgages and several others are at the advanced stage of introducing this type of mortgage.

Education of the lending staff in an institution will be straightforward since the NCM is consistent with conventional loan payment arrangements. The public has also been exposed to short term and variable rate mortgages and therefore, the technical task of developing new literature and promotional programs should not be difficult. Much of the data processing and reporting capabilities have already been developed or are underway as a result of variable rate mortgages.

5. Liquidity and Capital Reserves

Our earlier discussion of PLAM's applies to NCM's. Indexed deposits and mortgages should have little incremental impact on an institution's liquidity reserves or capital needs.

6. Loan Spreads

Due to higher administrative costs and default risks relative to a conventional mortgage, the loan spread will increase. Any increase, however, will be modest because of the matching risk attractiveness of indexed instruments and will definitely be lower than that predicted for a PLAM.

7. Summary

Exhibit 9 summarizes the risk and return characteristics for an NCM compared to a conventional mortgage. The default risks associated with an NCM will increase, suggesting that institutions will apply somewhat more stringent borrowing standards when qualifying an NCM. However, NCM's and the related deposit instruments enable institutions to immunize against much of the matching risk in offering these products. Institutions believe that an NCM would be attractive to borrowers because it retains the amortization feature of conventional mortgages and offers a more attractive interest rate. However, an NCM provides little relief from the "tilt" problem and does increase repayment risks for a borrower. An NCM could be introduced and administered with little additional cost and would have no impact on an institution's liquid and capital requirements. Any increase in loan spreads would be modest and would likely disappear after the front-end costs of introducing NCM's had been incurred and institutions gained more familiarity with their use.

EXHIBIT 9

Comparative Risk and Return Characteristics of an NCM Compared to a Conventional Mortgage

Default Risks

- increased risks:
  - income growth less than inflation
  - modest increases in principal outstanding and therefore, declining equity

Matching Risks

- risks are minimized

Loan Demand

- attractive to borrowers because of:
  - low interest rates
  - declining principal
- not attractive because of:
  - tilt problem
  - fluctuating loan payments

Administrative Costs

- some increased costs to:
  - promote product
  - develop system capacity

Liquidity and Capital Reserves

- minimal incremental impact

Loan Spreads

- modest increases due to:
  - higher repayment risks
  - greater administrative costs

PART IV

DIFFERENTIAL IMPACTS ON FINANCIAL INSTITUTIONS

The problems and opportunities created by indexed instruments will vary by institutional sector, and across different institutions within a sector. Depending on an institution's lending and deposit products, size, tax position and other characteristics, the firm may view the White Paper proposals as generating profitable new business or as weakening the institution's competitive position. An institution in the latter category will obviously react negatively to the White Paper. The purpose of this part of the report is to briefly outline the differential impacts of the indexing proposal and the consequences for the competitive structure of financial institutions.

Ease of Introduction of Indexed Products

If financial institutions are allowed the flexibility to design their own indexed products, the new mortgage will likely resemble the short term renewable or variable rate mortgages presently offered in the market. Three major institutions offer a fixed loan payment, variable rate mortgage and many institutions will provide a mortgage loan with a renewable term from 6 months to 5 years. Several institutions are also at the advanced stages of planning for a variable rate mortgage.

The new indexed mortgage could be designed and introduced by many institutions in a short time period. Promotion and customer education by these firms pioneering a variable rate mortgage should also ease the problems of introducing an indexed mortgage by all institutions. For those firms not currently offering or planning to offer a variable rate mortgage, the lead time to develop a new product could take upwards of a year.

Ability to Attract Deposits

Since indexed loans and deposits are to be matched, an institution's ability to gather deposits may constrain its willingness to offer an indexed mortgage. Some financial institutions will be at a competitive disadvantage in raising indexed deposits:

- Schedule 'B' banks, Schedule 'A' chartered banks without retail branches and some life insurance companies do not gather retail deposits.
- some of the small trust companies and credit unions have a deposit clientele mix whose tax positions make indexed deposits unattractive.
- pension funds purchase mortgages but do not issue deposits.

These institutions will either refrain from offering indexed mortgages, will have to "buy" their deposits in the open market or will originate mortgages for sale to those institutions

that can attract deposits. Their competitive position may be eroded because of a loss of potential mortgage customers or the burden of transaction costs from trading funds in the market.

Ability to Place Mortgage Loans

Not all of the institutions originate significant volumes of new house mortgages. The major chartered banks and a limited number of the larger trust and life insurance companies have strong connections with contractors and therefore, place the bulk of new home mortgages. Some life insurance companies do not offer any mortgage loans.

Institutions that are currently not participating in the new house mortgage market may not offer indexed deposits at all. If they do offer indexed deposits they will either have to change their lending activities, "sell" their deposits to firms that have a mortgage originating capability, or "buy" indexed mortgages from others. This group of institutions will again have a competitive or profit disadvantage.

Tax Position of the Institutions

Some financial intermediaries are in a non-taxable position and would find indexed mortgages to be unattractive investments. Pension funds, for example, purchase a substantial volume of mortgages for their portfolios. However, pension funds pay no

taxes and would clearly prefer a conventional mortgage offering higher nominal rates over those available on indexed mortgages. Pension funds have the further difficulty of not being able to offset indexed loans with indexed deposits.

Customer Diversity

The matching requirement in the White Paper is less serious for institutions, such as the chartered banks, who are actively engaged in making loans to the wide variety of borrowers eligible for indexed loans, namely house purchasers, farmers, fishermen and small businesses, and can therefore more easily balance loan volumes and deposit funds. This flexibility gives such institutions a competitive edge over trust companies and life insurance companies whose customer base is restricted by legislation or product strategy.

Ability to Diversify Mortgage Loan Risks

The increased default risks associated with a PLAM or NCM may be unacceptable for institutions with mortgages concentrated in particular geographic regions or in lower income groups. For example, a lender may be located in certain regions, such as Vancouver or Windsor, where unique local conditions may cause both average incomes and house prices to actually fall. These risks are reduced somewhat for an institution with branch offices, and consequently, mortgages are spread across Canada.

Size of Institution

The requirement for indexed loan and deposit volumes to be matched may cause balancing hardships for smaller institutions. The predictability of cash inflows and outflows increases for an institution that spreads its products across different markets and regions. The balancing difficulty for small intermediaries underscroes the need for an inter-institutional market in indexed funds.

Impact on Insurers

If the new instrument is made available for new housing only, the price of existing housing may fall. If this happens the exposure of CMHC and private mortgage insurers to claims costs may increase significantly.

In summary, while the implementation of the White Paper proposals may be feasible, it will certainly cause significant short term pressures on selected financial intermediaries resulting in changes in market share of savings deposits or a modification in their traditional deposit taking or lending strategies. The primary beneficiaries of inter-institution competition are likely to be the chartered banks.

P A R T V

LIKELY DESIGN OF INDEXED MORTGAGES

Financial institutions would generally prefer that if the government adopts the White Paper proposals, the characteristics of indexed deposits and loans be determined largely by the marketplace. The varied experience and judgement of the financial institutions will generate an indexed instrument or range of indexed instruments that meet the needs of savers, borrowers, and intermediaries. Given the substantial uncertainty surrounding the needs and constraints of these different participants, any attempt by the government to impose a specific design of indexed instrument could meet with failure. However, the government will have to take certain actions that will enable institutions to develop indexed instruments. These actions should at a minimum include:

1. Change the Canada Interest Act, federal and provincial statutes and other acts governing the financial institutions to permit floating interest rates on mortgage loans.

2. Specify the particular inflation index and the lag or lead in that index that institutions will employ in calculating real and inflationary interest returns.

3. Establish specific eligibility requirements: in the case of mortgage loans, the definition of a new home

would have to be specified as well as transferability and renewability conditions.

4. Clarify the frequency and precision of the matching requirement for indexed deposits and loans.

5. Create a negotiable, indexed funds vehicle that can be traded amongst institutions to permit portfolio balancing.

6. Set up provisions to act as a lender of last resort if the demand for indexed loan in aggregate exceeds the supply of indexed deposits during the introductory stages of the program.

Within the above bounds, institutions should be given full flexibility to develop an appropriate indexed vehicle. A range of indexed mortgages will emerge in view of the varied needs of different segments of borrowers. However, our earlier discussion of risks and returns for the extreme types of indexed mortgages suggests that the most likely characteristics of the new instrument are:

1. Indexed mortgages will take the form of an NCM and any graduation in payment will be modest.
   Lenders believe that the default risks associated with a sharply graduated payment scheme are high and that PLAM's will be unattractive to most borrowers.

2. The gross debt service ratio and loan to value ratio requirements will be somewhat more conservative.
The GDSR and LTVR will be lowered, likely to 25-27% and 70%-75% respectively, to reduce default risks. The new ratios will implicitly be the equivalent of the current ratios if inflation, house prices and income move in adverse fashions in the short run. The maximum ratios would be set substantially lower for PLAM's.

3. The terms of the mortgage will be relatively short, generally less than 3 years.
Lack of experience with indexed mortgages for both lenders and borrowers and the shorter maturity preferences of depositors will result in one to three year terms for mortgages.

4. The amortization period will remain at 20 to 25 years.
Institutions may shorten the amortization period somewhat to achieve the equivalent of a more conservative GDSR.

5. Indexed mortgages will be restricted generally to higher income borrowers.
Restricting indexed mortgages largely to higher income individuals will occur for several reasons. First, these borrowers will have a better understanding of the risks of fluctuating payment mortgages. Second, higher income earners will generally have larger equity investments in

their houses and can, therefore, better meet the more stringent borrowing qualifications. Third, income of these individuals are less susceptable to economic downturns. And fourth, institutional experience with the AHOP and GPM programs indicates that low income individuals are more inclined to walk away from a mortgage and undertake less maintenance of their properties.

6. The spreads on indexed mortgages will increase modestly. Higher default risks and up-front administration costs to develop indexed mortgages will cause spreads to increase. However, the initial increase will diminish as indexed mortgages become an established borrowing vehicle.

7. Indexed mortgages will generally be insured. In view of the newness of the instrument, the repayment risks, and the uncertain economic environment, institutions will want to insure indexed mortgages, almost regardless of the loan to value ratio and the gross debt service ratio of the borrower.

IMPLICATIONS OF INDEXED MORTGAGES FOR CMHC

CMHC's overall objective is to improve the quality and quantity of housing available to Canadians. The indexed mortgage proposals, depending on the eligibility requirements and features of the instrument, may impact on the overall

supply of housing as well as the ability of certain income groups to afford housing. These impacts, although important, are beyond the scope of this report. Our purpose in this section is to briefly examine the major implications of the previous discussion for CMHC's insurance activities.

CMHC's insurance posture is established by the major terms of its insurance program. These terms include:

- the type of house that will be insured (new versus existing homes, single family versus multiple-unit),
- maximum allowable prices of insured homes,
- the maximum gross debt service ratio permitted,
- the allowable loan to value ratio,
- the level of insurance premiums and frequency of premium payments,
- the term and amortization features permitted,
- the renewability provisions and costs required of lenders, and
- the claim procedures in the event of default.

CMHC can alter these individual terms or its overall insurance program in response to the creation of indexed mortgages. The large uncertainty surrounding the specific indexing provisions that the government ultimately adopts makes it difficult to

recommend specific changes to CMHC's insurance program. However, we can propose some broad guidelines:

1. CMHC should avoid detailing insurance requirements that preclude financial institutions from developing a viable indexed mortgage product.

   The novelty of indexed instruments and increased default risks imply that institutions will want to insure virtually all indexed mortgages. If CMHC insurance provisions result in insured mortgages that are high risk or high cost in the view of lenders, then few if any indexed mortgages will be granted. If the insurance program is aimed at lower priced houses, for example, lenders will avoid insurance and therefore indexed mortgages.

   Similarly, if CMHC requires frequent reporting of gross debt service ratios and loan to value ratios for insured indexed loans, institutions will consider the administrative costs to be too onerous.

2. A range of indexed loans will emerge and each needs to be assessed on its own merits.

   The design of a particular institution's indexed mortgage will depend on its originating capacity, fund sources, and perceptions of market needs. We have suggested that indexed mortgages will by and large be conservative lending vehicles. The borrowing standards used by most insti-

tutions are sufficiently prudent to generate indexed mortgages that will be considered insurable by CMHC. There should be little need for substantial prior consultation between CMHC and the institutions on the desirable features of an indexed mortgage. Any unusual instruments that are introduced, such as sharply graduated payments loans, can be assessed by CMHC on an ad hoc basis.

3. Indexed mortgages should be charged modestly higher premiums and the fee should be a one-time, up-front levy. Higher default risks for an NCM will require an increase in the insurance premiums, perhaps on the order of 1/4%. The premium should be paid at the time of origination of the mortgage. Although CMHC's risk may increase over time for some mortgages, as a result of an increasing GDSR or LTVR, the administrative costs of monitoring the status of mortgages are prohibitive. The institutions who currently offer a variable rate mortgage have found it uneconomic to undertake a yearly appraisal of the borrower's financial capacity and the market value of the property. In addition, the national makeup of CMHC's insured mortgage portfolio allows risks to be spread: markets with high default losses will be offset by lower than average losses in other localities.

4. An indexed mortgage designed and imposed by the government will require more assessment to determine an appropriate insurance program.

If the government requires institutions to offer an instrument with a different design from that which would emerge in the marketplace, CMHC will have to undertake a careful evaluation of risk and required insurance premiums. A PLAM or nonrenewable mortgage, for example, may lead to a default experience similar to that experienced with AHOP and GPM programs.

PART VI

SUMMARY AND CONCLUSIONS

This report discusses the creation of indexed mortgage loans proposed by the June, 1982 White Paper. Our discussion and analysis focuses on three particular issues: the problems and opportunities that institutions will experience in offering indexed instruments as part of their portfolio of products; the likely design of indexed mortgages that will emerge in the marketplace; and the implications for CMHC as an insurer of mortgages. These issues were investigated through interviews held with executives from financial institutions and industry associations. The major conclusions of this report are as follows:

1. The White Paper proposals have aroused serious concerns and criticisms by financial institutions regarding the proper role of government in the allocation of capital flows, the economic cost effectiveness of the proposed program and uncertainties surrounding future government initiatives. The long list of important concerns reflects on the basic soundness of the proposals and suggests that hasty introduction of the program may be inadvisable.

2. The ability of indexed mortgages to relieve difficulties faced by borrowers under inflationary conditions depends on the specific design of the mortgage instrument.

A no capitalization mortgage, or NCM, increases the borrower's risks of an onerous debt burden. A price level adjusted mortgage, or PLAM, on the other hand, reduces the likelihood that a borrower will be unable to service the loan payments. However, this advantage is at the potential cost of a declining equity investment in the property. Both forms of indexed mortgages should offer borrower's more favourable lending rates than currently available.

3. Financial institutions will assess the major portfolio impacts of the proposed mortgages including default and matching risks, potential loan volumes, administrative costs, liquidity and capital reserves and required loan spreads. PLAM's will entail greater default risks, larger up-front costs for introduction, higher loan spreads and questionable market acceptance. The risks of matching asset and liability terms are, however, lowered. NCM's offer similar matching advantages, can be introduced with fewer administrative costs, will involve less significant default risks and would require only a modest increase in loan spreads. Institutions anticipate that the marketability of an NCM would be better than that of a PLAM.

4. Implementation of the White Paper proposals will cause significant short term pressures in selected financial intermediaries resulting in changes in market shares of

savings deposits or a modification in their traditional deposit taking or lending strategies. Most significantly affected are institutions that are small, offer limited deposit and lending services, have a restricted customer base or are concentrated in a few geographic locations.

5. If the White Paper proposals are adopted, we anticipate that institutions will quickly introduce an indexed mortgage. The most likely characteristics of the new instrument are:

   - limited capitalization of inflation or graduation in payments.
   - lower gross debt service and loan to value ratios,
   - terms mostly between one and three years,
   - amortization of 20 years or less,
   - availability restricted largely to higher income individuals
   - fully insured, and
   - higher loan spreads for the institutions.

6. CMHC will be called upon to insure indexed mortgages. We propose that the following guidelines be adopted in developing new insurance programs:

   a) Insurance requirements should not be detailed to avoid limiting the viability of indexed mortgages.

b) Indexed mortgages should be charged modestly higher premiums and the fee should be a one-time, up-front levy.

c) Any novel indexed mortgage or feature imposed by the government instead of being initiated by financial institutions will require a more careful assessment by CMHC of insurability requirements.